




UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
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Seattle, WA 98115

Michelle Walker  
Chief, Regulatory Branch  
ATTN: Jim Green  
U.S. Army Corps of Engineers  
P.O. Box 3755  
Seattle, WA 98124-3755

AUG 03 2006

Re: Endangered Species Act Section 7 Informal Consultation for the Brightwater  
Wastewater Treatment System.

Dear  Ms. Walker:

This correspondence is in response to your request for re-initiation of consultation under the Endangered Species Act (ESA).

### Endangered Species Act

The National Marine Fisheries Service (NMFS) has reviewed the Biological Assessment Addendum (Addendum) received from the Corps of Engineers (COE) on May 23, 2006, information provided during the prior consultation on the project (reference NMFS Tracking No: 2004/00148), and additional information obtained during this consultation. NMFS previously conducted consultation on the possible effects of the proposed action on Puget Sound Chinook salmon and determined that the action was not likely to jeopardize the continued existence of the fish (NMFS Biological Opinion issued November 17, 2004). The Federal action by the COE is the issuance of a permit under the Clean Water Act and Rivers and Harbors Act of 1899 (RHA) for construction, operation, and maintenance activities associated with a new regional wastewater conveyance and treatment system in northern King County and southern Snohomish County, Washington.

The action area for the proposal is where construction or operation activities will affect Southern Resident killer whales (*Orcinus orca*). They include: the waters of central Puget Sound affected by modifying the existing dock structure at Point Wells, which, based on the estimated "acoustic footprint," will encompass an area of approximately 328 acres<sup>1</sup>; the waters affected by constructing the outfall pipe and discharging effluent, which linearly extend approximately 5,200 feet from the shore to a depth of 605 feet with

<sup>1</sup> Using the 650 m buffer zone as the radius, we calculated the area for the entire circle ( $\pi \times r^2$ ) and converted square meters to acres. To define the buffer zone, we estimated the sound propagation from pile driving before the use of sound attenuation devices and, when calculating the total area affected, we did not exclude the portion of the this area that would overlap the shore; therefore, the area affected is likely to be an overestimate.



an effluent plume expected to extend from 10 to 100 meters from the diffuser; and the waters along the route taken by the tug and barge during the transport and disposal of tunnel spoils, which (if the tug is based in Seattle and the disposal site is in Port Ludlow) would cover approximately 80 (statute) miles. Southern Resident killer whales are exposed to a wide variety of human activities in the action area, such as vessel traffic, other construction activities, pollution, as well as commercial and recreational fishing. Although we have little information that would enable us to quantify their impact on Southern Residents, these activities are ongoing and expected to continue in the future throughout the action area.

As mentioned above, the COE proposes to issue a permit for construction, operation, and maintenance of a new wastewater treatment system, called Brightwater. The treatment system includes a treatment plant, conveyance pipes, and an outfall in Puget Sound. The treatment plant design includes preliminary, primary, and secondary treatment facilities, disinfection facilities, water treatment for reusing some water, solids treatment and handling facilities, odor control facilities, and electrical substations. Construction will occur over a 5-year period. The first phase of the treatment plant will be completed in 2010 and will have the capacity to provide secondary treatment to 36 million gallons of wastewater per day. By 2040, the Brightwater treatment plant will reach a full capacity of 54 million gallons per day.

Membrane Bioreactor (MBR) treatment technology will be used to treat the municipal wastewater of King County and southern Snohomish County. During high flow events that exceed the MBR capacity, excess flow will be treated using advanced primary treatment, which would then be blended with MBR effluent prior to discharge.

The new conveyance system will carry untreated wastewater from wastewater inputs at the north end of Lake Washington to the treatment plant. The plan calls for tunneling from the north end of the lake to the treatment plant and from the treatment plant to Puget Sound. Tunnel boring machines will be used to construct the tunnels, which excavate the ground and then install concrete lining in the shape of a pipe as the machine advances.

The proposed outfall will originate at Point Wells, at the south end of a property owned by Paramount Petroleum. The outfall pipe will extend approximately one mile offshore to a depth of about 605 feet below mean lower low water (MLLW). A diffuser at the end of the pipeline will disperse the effluent into Puget Sound.

Within the shore zone, the outfall will be buried beneath the substrate. To minimize substrate disturbance during construction, using a vibratory hammer, King County will install two walls of sheet pile perpendicular to the shore, creating a 20-foot wide excavation corridor between them. This method will be used to limit the width of the area disturbed by the trenching activity between Point Wells and minus 30 feet MLLW. The length of the trench with sheet pile walls is estimated to be 500 feet. The remainder or the trenching – between minus 30 and minus 80 feet MLLW (an additional 200 feet) – will not include sheet pile. Burying the pipe will disturb about 0.75 acres. Beyond minus 80 feet, the outfall pipe will be installed on the surface of the seafloor rather than being

buried. The excavation work will disturb about 0.31 acres of beach habitat. Some driftwood and vegetation at the upper beach zone will also be removed.

The outfall and diffuser construction will take 10 to 12 months, assuming no significant delays, such as those caused by inclement weather, accidents, or construction material supply difficulties. The offshore pipe laying will be performed using either segmental lay, controlled submergence, or bottom pull methods. Staging areas for both offshore and onshore construction will be primarily at the Point Wells portal site on the Chevron property.

The current plan requires the removal and conveyance of approximately 165,000 cubic yards (CY) of tunnel spoils, which will be produced at the rate of 1,500 CY per week during 2008 and 2009. The spoils will be loaded onto barges via an enclosed conveyor for transport to a disposal site<sup>2</sup>. The available barges have capacities of 1,764 or 2,941 CY, and the size used will depend on availability. If 1,764 CY barges are used, spoils will be conveyed once per week, or once every two weeks if 2,941 CY barges are used. This will result in a total of 55 to 110 tunnel spoil conveyance trips during the two-year period of barge operations.

A tug boat will be used to move the barges, which will have to leave a home port, travel to Point Wells to pick up the loaded barge, convey the loaded barge to the disposal site, return the empty barge to Point Wells, and return to its home port. If the tug is based in Seattle and the disposal site is at Port Ludlow, each barge trip will require approximately 80 (statute) miles of tug travel at an average speed of 6 knots. In addition, the tug will spend 3 or 4 hours maneuvering and standing by during docking and departure operations. Over the two-year period of tug and barge operations, the vessels will log approximately 4,400 to 8,800 miles of travel and 880 to 1,760 hours of operation time.

To support the proposed tug and barge operations (including the transport of spoils to the barges and the offloading of supplies and equipment), an existing dock adjacent to the Point Wells portal #19 site would be used. However, a portion of the dock would need to be modified to support the conveyor system used to transport tunnel spoils to the barges. Specifically, King County anticipates replacing up to 18 piles with new 14-inch diameter steel piles to restore the dock to its design load capacity. Paramount Petroleum is under contract with King County to install the 18 new piles, which is scheduled to occur between August 11 and early September, 2006. The piles would be driven with a hammer pile driver because installing the piles with a vibratory hammer would not achieve the structural support necessary. Some of the existing timber pilings would be removed (cut at the sediment line) and disposed of at an appropriate upland disposal facility. The pilings used will be filled steel piles 14 inches in diameter, which are hollow steel piles that are driven into the bottom and then filled with concrete. To attenuate sound, the installation of steel piles would include the use of a 6-inch thick piece of wood between the pile and the hammer, plus a bubble curtain.

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<sup>2</sup> According to the April 2006 Addendum, the barge disposal site has not been determined. The closest available site is near Port Ludlow.

Conservation measures, adopted as parts of the proposed action, are intended to reduce adverse effects on listed species and their habitats. These measures include designated work windows, limited trench width, controlled use of equipment, careful removal, handling, and replanting of eelgrass, and measures to protect water quality. NMFS regards these conservation measures as integral components of the proposed action and expects that the initiation and completion of all activities under the proposed action will be consistent with those measures. We have completed our effects analysis accordingly.

### **Jeopardy Determination**

The proposed action could have direct and indirect effects on killer whales including:

- Sound generated during construction
- Reduction in prey availability
- Vessel activity and associated sound
- Contamination of prey and accumulation of toxins

NMFS has analyzed the potential impacts of the project and has determined that the effects to killer whales will be insignificant and discountable for the following reasons:

1. Killer whales are unlikely to be exposed to sound generated during construction.
  - a. Killer whales are rarely reported in the vicinity of the proposed pile driving activity during the proposed work window (July 15 to February 15). Although the work window was adopted to reduce the risks to ESA-listed salmonids, these months correspond to a period of low use by Southern Resident killer whales in central Puget Sound. A review of killer whale sighting data compiled by The Whale Museum over a 13 year period from 1990 to 2003 indicates that Southern Residents have not been sighted in the area in July. From August to October, Southern Residents have only been sighted in the area from one to five days over the same 13 year period. For the month of November, killer whales have been sighted a total of 6 to 25 days over the 13 year data set. Between December and February, killer whales have only been sighted in the area from one to five days over the 13 year period;
  - b. Killer whales are extremely unlikely to be present in shallow water near the pile driving activity associated with the dock maintenance. Although the proposed design of the dock retrofit is not yet available, King County indicated that pilings would be placed in the water along the main body of the dock (water depths between -40 and -50 feet MLLW), and along the trestle leading from the shore to the dock (-40 to +5 feet MLLW). Due to their size, which may limit maneuverability, Southern Residents are seldom observed in shallow waters and NMFS recently proposed not to include waters less than 20 feet deep within the geographical area occupied by the species for critical habitat designation (71 FR 34571; June 15, 2006); and
  - c. During the dock repairs, pile driving will produce elevated sound source levels on the order of 195 dB (re 1  $\mu$  Pa) and 180 dB<sub>rms</sub> at 30 meters based on observations

made during pile driving of 14-inch steel piles at the seismic retrofit of the Richmond-San Rafael Bridge in California (Reyff 2003). NMFS has provided guidance that elevated sound pressure levels ( $>160$  dB re  $1\mu$  Pa), associated with pile driving, may disturb killer whales. To eliminate the risk of potentially disturbing Southern Residents, a buffer zone will be established around the site and marked by buoys that identify the 160 dB isopleth. In addition, this area will be continuously monitored for the presence of marine mammals. Based on the observations made by Reyff (2003), we used a practical spreading model to estimate the level of exposure to sound generated from driving 14-inch piles, and the estimated 160 dB<sub>rms</sub> disturbance threshold would be encountered at approximately 650 meters. Furthermore, in the unlikely event that a Southern Resident appears off Point Wells during construction, pile driving will not be initiated. If the whales enter the buffer zone during the activity, work will be temporarily suspended until they exit the zone. Although killer whales may still avoid the area, the exposure to sound would be limited in duration and, therefore, not result in take. Moreover, the inclusion of this operating procedure will prevent exposure to sound above 160 dB, which also avoids the potential for take.

2. Killer whale prey availability is unlikely to be significantly reduced by the proposed action. NMFS previously analyzed the effects of the activity on Puget Sound Chinook (an important prey item for killer whales) and found that, although some unquantifiable amount of take may occur, the proposed action is not expected to appreciably reduce the distribution, reproduction, or numbers of Puget Sound Chinook, and, therefore, not likely to jeopardize their continued existence. In addition, the terms and conditions for the implementation of reasonable and prudent measures – specified in the previous consultation (NMFS 2004) – included work windows, sound attenuation, and acoustic monitoring that will minimize the incidental take of Puget Sound Chinook. Furthermore, although the incidental take of Puget Sound Chinook is likely to occur, the amount of take is expected to be small, and the project area is not known to be a primary feeding area for Southern Residents. We have limited information available to evaluate if the small amount of Chinook salmon taken would affect prey availability in areas where whales do feed, but the small number of whales observed feeding during fall involved chum salmon, not Chinook. Therefore, based on the above factors, any reduction in prey available to killer whales is likely to be insignificant.

3. Killer whales are unlikely to be disturbed or injured by the increase in vessel traffic and sound associated with the proposed action because the tug and barge activities would be temporary (1 trip a week for two years) and the vessels would be slow moving (average speed = 6 knots). Although the expected increase in vessel activities could result in the alteration of whale movement patterns through the action area, any avoidance would be short-term in nature and not expected to result in take.

4. Killer whales are likely to benefit from the proposed action because the use of MBR treatment technology at Brightwater will result in the discharge of treated effluent with contaminant levels substantially below what they would be if the

Brightwater facility were not permitted. NMFS previously analyzed the effects of the outfall operation on Puget Sound Chinook and found that less mercury in the wastewater system and better treatment will reduce the potential for effects to Puget Sound Chinook (NMFS 2004), which may also reduce the potential for bioaccumulation of these contaminants in Southern Resident killer whales.

Therefore, NMFS concurs with your effects determination of “may affect, but not likely to adversely affect” Southern Resident killer whales.

### **Critical Habitat Determination**

NMFS proposed critical habitat for Southern Resident killer whales on June 15, 2006 (71 FR 43571). This proposal includes approximately 2,500 square miles of Puget Sound. Areas with water less than 20 feet deep are not proposed. The primary constituent elements (PCEs) for proposed Southern Resident killer whale critical habitat are: 1) water quality to support growth and development; 2) prey species of sufficient quantity, quality, and availability to support individual growth, reproduction and development, as well as overall population growth; and 3) passage conditions to allow for migration, resting, and foraging. Agencies are required to confer on actions that are likely to adversely modify or destroy proposed critical habitat.

The proposed action could have direct and indirect effects on proposed killer whale critical habitat including:

- Contamination of water and/or prey
- Reduction in prey availability
- Interference with passage

We have analyzed the potential impacts of the project on the Southern Resident killer whale proposed critical habitat and PCEs and determined that the impacts to proposed critical habitat are insignificant and discountable for the following reasons:

1. Water quality and prey quality are likely to benefit from the proposed action because the use of MBR treatment technology at Brightwater will result in the discharge of treated effluent with contaminant levels substantially below what they would be if the Brightwater facility were not permitted. NMFS previously analyzed the effects of the outfall operation on Puget Sound Chinook and found that less mercury in the wastewater system and better treatment will reduce the potential for effects to Puget Sound Chinook (NMFS 2004), which may also reduce the potential for bioaccumulation of these contaminants in Southern Resident killer whales.
2. The quantity and availability of prey species are unlikely to be significantly reduced by the proposed activity. NMFS previously analyzed the effects of the activity on Puget Sound Chinook (an important prey item for killer whales) and found that, although some unquantifiable amount of take may occur, the proposed action is not expected to appreciably reduce the distribution, reproduction, or

numbers of Puget Sound Chinook, and, therefore, not likely to jeopardize their continued existence. In addition, the terms and conditions for the implementation of reasonable and prudent measures – specified in the previous consultation (NMFS 2004) – included work windows, sound attenuation, and acoustic monitoring that will minimize the incidental take of Puget Sound Chinook. Furthermore, although the incidental take of Puget Sound Chinook is likely to occur, the amount of take is expected to be small, and the project area is not known to be a primary feeding area for Southern Residents. We have limited information available to evaluate if the small amount of Chinook salmon taken would affect prey availability in areas where whales do feed, but the small number of whales observed feeding during fall involved chum salmon, not Chinook. Therefore, based on the above factors, any reduction in prey available to killer whales is likely to be insignificant.

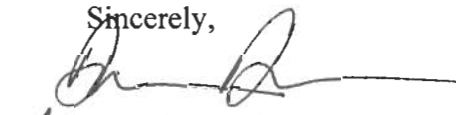
3. Although the temporary increase in vessel traffic and sound associated with the proposed action and the construction sound from pile driving could result in short-term avoidance and alteration of killer whale movements, the proposed action is not expected to block passage because there will be adequate open space seaward of the action area to allow whales to pass.

Therefore, it is our opinion that the proposed action is not likely to adversely modify or destroy proposed Southern Resident killer whale critical habitat.

In accordance with regulations found at 50 CFR 402.14(b)(1), this concludes informal consultation on this proposed action. Consultation must be reinitiated if: 1) new information reveals effects of the action that may affect listed species in a way not previously considered; 2) new information reveals the action causes an effect to listed species that was not previously considered; or 3) a new species is listed or critical habitat designated that may be affected by the identified actions.

If you have any further questions, please contact Brian Hopper or Lynne Barre of my staff at 206-526-6146 and 206-526-4745, respectively, or by email at [brian.d.hopper@noaa.gov](mailto:brian.d.hopper@noaa.gov) and [lynne.barre@noaa.gov](mailto:lynne.barre@noaa.gov).

Sincerely,



D. Robert Lohn  
Regional Administrator

Cc: Lynne Barre, PRD  
Brian D. Hopper, PRD  
Phyllis Meyers, HCD